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ZION HADAD  
48 HAALMOGIM ST  
RISHON LEZION,  
ISRAEL

EXAMINER

DUONG, DUC T

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/399,109

Applicant(s)

HADAD, ZION

Examiner

Duc T. Duong

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 September 1999.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 12 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1, 2, 3, and 11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 1-20 are objected to because of the following informalities: The claims should be on a separate page from the specification. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

In claims 17, 19, 20, it appears that only a single means, namely a combination of CDMA modulation codes and OFDM coding/encoding means (claim 17, lines 1-2), a combination of OFDM and channeling means (claim 19, lines 1-2), and a channeling means comprise TDD means, TD means, FDD means, or combination thereof (claim 20, lines 1-3) are recited. These means covers every conceivable means for achieving the stated result, but the specification discloses at most only those means known to the inventors. Therefore, the disclosure does not enable one skilled in the art to make and use the claimed invention without undue experimentation.

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 4, 16, and 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the DVB-T standard" on line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the effects of multipath" on line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the pulse" on line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 and 19 recites the limitation "the uplink" on line 3. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 20, the word "means" is preceded by the word(s) "channeling" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 9, 11, 13-15, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Frodigh et al (U.S. Patent 5,726,978).

Regarding to claim 1, Frodigh discloses a unidirectional or broadcasting communication system (Fig. 1) using OFDM transmission from a base station to subscriber units, means for achieving a bi-directional channel comprising transmitting means 300 (Fig. 3) in the subscriber units for a transmission of signals that are orthogonal (Fig. 2 col. 7 lines 51-63, noted the M subcarriers are orthogonal to each others) to the signals transmitted from the base station and are also orthogonal to signals from other subscriber units; and receiving means 330 in the base station for reception of said orthogonal signals (Fig. 3 col. 8 lines 1-6).

Regarding to claims 2 and 20, Frodigh discloses the transmitting means in the subscriber include means 308 for the transmission of the orthogonal signals using TD, or TDD, or FDD methods (Fig. 3B col. 7 lines 28-30).

Regarding to claim 9, Frodigh discloses base station further includes means 360 for the transmission of Automatic Power Control (APC) signals to said subscriber units, and wherein said subscriber units further include means 360 for controlling the power of transmissions therefrom responsive to said received APC signals (Fig. 3A col. 7 lines 29-39).

Regarding to claim 11, Frodigh discloses means 346 for achieving a carrier frequency lock between the base station and the mobile users (Fig. 3C col. 9 lines 32-37).

Regarding to claims 13 and 14, Frodigh discloses means 360 (Fig. 3) for implementing a dynamic allocation of carriers or TDMA slots or CDMA codes to subscribers, according to their bandwidth demands (Fig. 3A col. 7 lines 14-21).

Regarding to claim 15, Frodigh discloses the OFDM system includes coding and decoding means comprising fast Fourier transform means 336 (Fig. 3C col. 8 lines 42-48).

Regarding to claim 19, Frodigh discloses in a communication system, a combination of OFDM and channeling means 300 for achieving orthogonality between signals from the various users in the uplink (Fig. 2 col. 7 lines 51-62).

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Alamouti et al (U.S. Patent 5,933,421).

Regarding to claim 1, Alamouti discloses in a unidirectional or broadcasting communication system (Fig. 1) using OFDM transmission from a base station to subscriber units, means for achieving a bi-directional channel comprising transmitting means in the subscriber units for a transmission of signals that are orthogonal to the signals transmitted from the base station (F2 orthogonal to F1) and are also orthogonal to signals from other subscriber units (F2 orthogonal F4, col. 9 lines 28-43); and receiving means in the base station for reception of said orthogonal signals (col. 9 lines 43-46).

Regarding to claim 10, Alamouti discloses the base station further transmits a pilot signal (Fig. 1.6 col. 15 lines 9-10) and wherein each subscriber unit further including means for generating the transmit signal having a frequency responsive to the frequency of the pilot signal (Fig. 1.10 col. 16 lines 2-13).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh in view of Alamouti.

Regarding to claim 10, Frodigh discloses all the limitation with respect to claim 1, except for the base station further transmits a pilot signal and wherein each subscriber unit further including means for generating the transmit signal having a frequency

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responsive to the frequency of the pilot signal. However, Alamouti discloses the base station adding a pilot symbol in the transmission (Fig. 1.6 col. 15 lines 9-10) and wherein each subscriber unit further including a despreader for generating the transmit signal having a frequency responsive to the frequency of the pilot signal (Fig. 1.10 col. 16 lines 2-13). Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to included the used of pilot signal as taught by Alamouti in Frodigh's system since it is well known in the art for used of synchronization in telecommunication network.

12. Claims 3, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh in view of Gudmundson et al (U.S. Patent 5,790,516).

Regarding to claims 3, 4, and 7, Frodigh discloses all the limitation with respect to claim 1, except for the base station and the subscriber units operate according to the DVB-T standard (claim 3); the base station and the subscriber units further include equalizing means and pulse shaping means for reducing the effects of multipath (claim 4); and a signal shaping means in the transmitter of the base station or in the transmitter of the subscriber for an application of a window in time to signals transmitted therefrom (claim 7).

However, Gudmundson discloses an orthogonal frequency division multiplexed system OFDM capable operating in a broadcasting (DVB-T) environment (col. 2 lines 53-54) comprising a pulseshaping multipliers 406 (equalizing and pulse shaping means) for reducing the effects of multipath (Fig. 4 col. 7 lines 50-55) and a Hanning window



function (signal shaping means) in the transmitter for an application of a window in time to signals (col. 8 lines 58-67).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the OFDM system as taught by Gudmundson in Frodigh's apparatus with the motivation to reduced intersymbol interference between data symbols.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh in view of Davies et al (U.S. Patent 5,953,311).

Regarding to claim 5, Frodigh discloses all the limitation with respect to claim 1, except for the signals transmitted from the base station include a guard time interval, and wherein the signals transmitted to the base station are synchronous with the guard time interval. However, Davies discloses a COFDM system with a timing synchronization circuit for locating the guard interval (Fig. 4 col. 5 lines 5-6). Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to included the guard interval for synchronization as taught by Davies in Frodigh's system to reduced intersymbol interference.

14. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh in view of Wahlqvist et al (U.S. Patent 6,088,398).

Regarding to claim 6, Frodigh discloses all the limitation with respect to claim 1, except for signal shaping means in the receiver of the base station or in the receiver of the subscriber unit for an application of a window in time to signals received therein. However, Wahlqvist discloses an OFDM system with pulse shaping means for an

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application of a time window to signals (Fig. 5 col. 3 lines 25). Thus, it would have been obvious to one of ordinary skilled in the art at the time of the invention to included a pulse shaping means as taught by Wahlqvist in Frodigh's system with the motivation to suppressed side lobes of signal.

15. Claims 8, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh in view of Kaiser et al (U.S. Patent 6,188,717 B1).

Regarding to claims 8, 17, and 18, Frodigh discloses all the limitation with respect to claim 1, except for base station further includes means for the transmission of Automatic Synchronization Control (ASC) signals to said subscriber units, and wherein said subscriber units further include means for synchronizing transmissions therefrom responsive to said received ASC signals (claim 8); a combination of CDMA modulation codes and OFDM coding/decoding means to achieve orthogonality between signals from the various users in the uplink (claim 17); and the CDMA modulation codes comprise orthogonal Walsh codes.

However, Kaiser discloses a multi-carrier OFDM system comprises means for the transmission of Automatic Synchronization Control (ASC) signals (insertion of reference data 14) to said subscriber units, and wherein said subscriber units further include means for synchronizing transmissions therefrom responsive to said received ASC signals (Fig. 5 col. 6 lines 8-10); a combination of CDMA modulation codes 3 and OFDM coding/decoding means 5 to achieve orthogonality between signals from the various users in the uplink (Fig. 2 col. 5 lines 30-33 and lines 58-65); and the CDMA modulation codes comprise orthogonal Walsh codes (col. 5 lines 43-45).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to includes the multi-carrier OFDM system as taught by Kaiser in Frodigh's apparatus to eliminated signal-level fluctuations and channel disturbances.

***Allowable Subject Matter***

16. Claims 12, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Duong whose telephone number is 703-605-5146. The examiner can normally be reached on M-Th (8:30 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 703-308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

DD  
December 13, 2002



12/13/02